

## INTERNATIONAL PATENT COOPERATION TREATY

From: AUTHORITY RESPONSIBLE FOR  
INTERNATIONAL PRELIMINARY EXAMINATION

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| To:<br>Michael Bickel<br>WESTPHAL, MUSSGUG & PARTNER<br>Patent Attorneys<br>Mozartstrasse 8<br>D-80336 Munich<br>GERMANY [receipt stamp: Feb. 03, 2004] |  | <b>PCT</b><br><br>WRITTEN OPINION<br>(PCT Rule 66)                |  |
|   |  | Date issued<br>(day/month/year) 02.02.2004                        |  |
| Applicant or Agent file number:<br>Mic156wo   |  | <b>RESPONSE DEADLINE</b> within 3 month(s)<br>of above issue date |  |
| International file number:<br>PCT/EP03/03782  | International application date<br>(day/month/year) | Priority date (day/month/year)<br>12.04.2002                      |  |
| International Patent classification (IPC) or national classification and IPC: G01N33/543  |  |   |  |
| Applicant: MICRONAS GMBH et al.   |  |   |  |

- This examination report is the **first** written report by the authority responsible for international preliminary examination.
- This report contains information on the following points:
  - ☒ Basis for opinion
  - ☐ Priority
  - ☐ No opinion issued regarding novelty, inventive step, or industrial applicability
  - ☐ Lack of unity of invention
  - ☒ Finding, with supportive reasoning according to Rule 66.2a)ii), regarding novelty, inventive step, and industrial applicability; documents and explanations in support of this finding
  - ☐ Specific documents cited
  - ☐ Specific flaws in international application
  - ☐ Specific comments on international application
- The applicant is **requested to respond** to this examination report.  
**When?** See deadline stated above. The applicant may apply to the authority for an extension prior to this deadline; see Rule 66.2 d).  
**How?** By filing a written response and, where applicable, amendments under Rule 66.3. For the format and language of the amendments, see Rules 66.8 and 66.9.  
**Also:** For an additional option for filing amendments, see Rule 66.4.  
 For the examiner's obligation to take amendments and/or arguments into account, see Rule 66.4 bis.  
 For an informal interview with the examiner, see Rule 66.6.  
**If no response is filed**, the international preliminary examination report will be issued on the basis of this opinion.
- The deadline for issuance of the international preliminary examination report under Rule 69.2 is: 12.08.2004.

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| Name and address of authority responsible for international preliminary examination:<br>European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399-0 Tx: 523656 epmu d<br>Fax: +49 89 2399-4465 | Authorized officer:<br>D. Fourgeaud [seal]                                     |
|   | Formalities officer (incl. deadline ext.)<br>C. Spira<br>Tel. +49 89 2399-7096 |

## WRITTEN OPINION

International Application Number PCT/EP 03/03782

## I. Basis for Opinion

1. Regarding the **components** of the international application (*replacement pages filed with the Application Office in response to a request under Article 14 are deemed "originally filed" in the context of this report*):

**Specification, pages:**

1-15 in the version originally filed

**Claims, Nos.:**

1-7 in the version originally filed

2. Regarding **language**: All the components listed above are available to the authority in the language in which the international application was filed or were filed in this language unless otherwise stated below.

The components are available to the authority in language: or were filed in this language; these are:

- ☐ the language of the translation filed for purposes of the international search (according to Rule 23.1(b));
- ☐ the language in which the international application was published (according to Rule 48.3(b)).
- ☐ the language of the translation filed for purposes of the international preliminary examination (according to Rule 55.2 and/or 55.3).

3. Regarding the **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was conducted on the basis of the sequence listing which:

- ☐ is contained in the international application in written form;
- ☐ was filed together with the international application in computer-readable form;
- ☐ was filed with the authority subsequently in written form;
- ☐ was filed with the authority subsequently in computer-readable form;
- ☐ the declaration that the sequence listing subsequently filed in writing does not go beyond the disclosure content of the international application, at the time it was applied for, was submitted;
- ☐ the declaration that the information entered in computer-readable form corresponds to the written sequence listing was submitted.

4. Because of the amendments, the following documents no longer apply:

- ☐ specification, pages:
- ☐ claims, nos.:
- ☐ drawings, page:

5. ☐ This report was issued without taking into account (some of) the amendments, as these, for the reasons stated, in the opinion of the authority go beyond the content disclosed in the version originally filed (Rule 70.2 c)).

6. Any additional remarks:

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**V. Finding with supporting reasons under Rule 66.2(a)(ii) regarding novelty, inventive step, and industrial applicability; documents and explanations in support of this finding.**

1. Finding

|                          |        |                 |
|--------------------------|--------|-----------------|
| Novelty                  | Claims | NO, all claims  |
| Inventive step           | Claims | NO, all claims  |
| Industrial applicability | Claims | YES, all claims |

2. Documents and explanations  
**see attachment**

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ATTACHMENT**

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**Re Point I  
Basis for Opinion**

The examination is based on the **following application documents**:

In the version for the following contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV MC MK NL PL  
PT RO SE SI SK TR

**Description, pages:**

1-15            original version

**Claims, Nos.:**

1-7            original version

Reference is made to the following documents:

- D1: US-A-5,700,559 (Loh, Ih-Houng et al.), December 23, 1997 (1997-12-23)
- D2: DE 196 18 812 C (Karlsruhe Forschzent) November 20, 1997 (1997-11-20)
- D3: DE 44 18 926 C (Karlsruhe Forschzent) February 8, 1996 (1996-02-08)
- D4: Oh, S. Y. et al." Electrochemical Properties of Self-Assembled Cytochrome C on Gold Substrate Patterned with a Photosensitive Polyimide Film," Optical Materials, Elsevier Science Publishers B.V., Amsterdam, NL, Vol. 21, No. 1-3, January 2003 (2003-01), pages 265-269, XP004395432, ISSN: 0925-3467
- D5: EP-A-0 874 242 (Radox Laboratories, Ltd.) October 28, 1998 (1998-10-28)

**Re Point V**

**Finding, with supportive reasoning, according to Rule 66.2(a)(ii) regarding novelty, inventive step, and industrial applicability; documents and explanations in support of this finding**

1. Claim 1 claims a method for immobilizing molecules on surfaces, characterized in that
- a) a layer of a hydrophobic polymer is applied to the surface,
  - b) molecules are immobilized on the surface of the layer.

Claim 2 further specifies that the polymer is made of polyimide and/or polystyrene.

2.1. The subject of the sole independent Claim 1 does not satisfy the requirements of EPC Article 54 and for the following reasons cannot be regarded as novel:

2.2. D1 discloses a hydrophilic article that comprises a porous substrate, an ionic polymer layer, and a polyelectrolyte coating (see Claim 1). The substrate is first coated with the ionic layer; this layer is made of various polymers, in particular and possibly of polypropylene, polyimide, ... (see Claim 2). The hydrophobic properties of these polymers are known and obvious to the individual skilled in the art.

2.3. D2 discloses a sensor for the detection of proteins, the sensor body first being coated with a polyimide and modified receptor molecules then being immobilized on this polymer layer (see column 2 lines 37-44 and see Claim 1). Both steps of the method of Claim 1 can again be found here.

2.4. D3, which is very similar to D2, also discloses a method in which molecules are immobilized on a polyimide layer that itself was applied to a substrate (see Claim 1).

2.5. In D4, a gold substrate is coated with polyimide, cytochrome C then being immobilized on this polyimide layer (see paragraph 2, Experimental).

2.6. In D5, antibodies are immobilized on a substrate coated with silanes (see Example 1). The disclosure of D5 accordingly falls in the region of the

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subject of Claim 1 of the present application.

2.7. On these grounds, the subject of Claim 1 of the present application cannot be regarded as novel (EPC Article 54).

Accordingly, the subject of this Claim 1 is not based on an inventive step (EPC Article 56).

3. On the following grounds, the dependent claims, like Claim 1, are not based on an inventive step:

- the feature from Claim 2 can be found in all the documents D1-D5, in particular in the passages cited above;
- the feature from Claim 3 is obvious but also derives from the disclosure of the various documents;
- the features of Claims 4 and 6 can be inferred from D1 (column 6 line 30) by the individual skilled in the art;
- the immobilization of molecules by UV irradiation is known from D2 (see Claim 2, d);
- the employment of the polymer layer in the region of integrated circuits follows from D4.

**Other Remarks:**

4. Parentheses should be used in the Claims only for reference characters (EPC Rule 29(7)). Accordingly, the present Claim 7 should be corrected.

5. Applicant is requested to file amendments on replacement pages as prescribed in PCT Rule 66.8

a). In particular, clean copies of the amendments should be filed in triplicate.

Applicant is further advised that, pursuant to PCT Rule 66.8 a), the examiner in the PCT proceeding is not permitted to make changes of any kind, however slight.